

Index of Subjects, Volume XIII

(Small Roman numerals refer to the News Sections; large Roman numerals refer to Picture Sections in the November, January, March and May issues.)

A

Acoustics (see Sound, Speech, Hearing and Acoustics)

Addresses

Gifford on Fiftieth Anniversary	276
Gifford on Investigations	Dec.—iii
Alloys, Iron—Cobalt	<i>Kelsall</i> 10
Analyzer, Mechanical Wave	<i>Koenig, Jr.</i> 258
Antennas (see Radio)	
Audiphone, Bone—Conduction Receiver for the	<i>Miner</i> 364
Awards (see Prizes and Other Honors)	

B

Biography

Bruce, Edmund, Awarded Edward Longstreth Medal	280, June—i
Fletcher, Harvey, Honored by Columbia	July—ii
Fletcher, Harvey, Honored by National Academy of Sciences	June—i
Gilman, G. W., Honored by Japan	July—ii
Grace, Sergius P., 1875-1935	July—i
Jewett, F. B., Awarded Faraday Medal	349, Mar.—i
Jewett, F. B., Thirty Years of Service	Oct.—i
King, R. W.	Mar.—i
Llewellyn, F. B., Awarded Morris Liebmann Memorial Prize	331
Lucas, F. F., Awarded John Price Wetherell Medal	202, June—i
Morehouse, L. F., Sails for England	May—ii
Norton, Philander, 1882-1935	162
Watson, Thomas Augustus, 1854-1934	Jan.—iii
Williams, R. R., Honored by Ottawa University	June—i

NOTE: A biography of the author of each article in Volume XIII is to be found under the heading "Contributors to This Issue" in the back of the issue in which the article appears.

Book Notices and Reviews

Signals and Speech in Electrical Communication (Mills)	150
--	-----

Cables

C

Coaxial Conductor

Experimental Installation at Phoenixville (Picture)	358
Experimental Repeater (Picture)	193
Systems	<i>Strieby</i> 322
Typical Conductors (Picture)	321
Conduit Plugs	<i>Gray</i> 281

Cables (Continued)

Dryness in Telephone Cables	<i>Hall</i>	312
Investigation of Sheath Fatigue in Field		Jan.—iv
Testing Cable Sheath for Fatigue	<i>Greenall</i>	12
Cadmium Crystals (Picture)		65
Carbon (see Transmitters)		
Carrier		
Automatic Regulation of Transmission on Open-Wire		
Carrier Lines	<i>Terry</i>	54
Regulation of Transmission Over Open-Wire Lines at		
Carrier Frequencies	<i>Ilgenfritz</i>	49
Central Office Equipment		
Switchboard Cord, The	<i>Staples</i>	25
Trunk Group Busy Register	<i>Oakes</i>	21
Chart, Universal Alignment	<i>Peck, Jr.</i>	250
Coaxial Conductor (see Cable)		
Compandor, Voice Operated	<i>Norman</i>	98
Compass (see Radio-Marine)		
Conduit Plugs	<i>Gray</i>	281
Cord, The Switchboard	<i>Staples</i>	25
Corona, Observing the	<i>Skellett</i>	113
Cotton, Insulation Resistance of	<i>Walker</i>	209
Crosstalk, Balancing, in Toll Cables	<i>Weaver</i>	359
Crystals		
Cadmium (Picture)		65
Measuring the Photosensitivity of Crystals (Picture)		318

E

Electrical Research Products, Inc.		373
Equalizer, The Bridged T	<i>Stillwell</i>	369

F

Fatigue, Testing Cable Sheath for	<i>Greenall</i>	12
Filters, Quartz Crystal	<i>Mason</i>	305
Finishes, Evaluation of Organic	<i>Hipkins</i>	141
Franklin Institute		
Medal Presentation to F. F. Lucas and Edmund Bruce		June—i
Museum		Feb.—vii
Frequency, Experimental Installation of Reference (Picture)		May—II

G

Galvanometry in Vacuo	<i>Ellwood</i>	151
Green Harbor—Provincetown Ultra-Short Wave Radio	<i>Merriam</i>	34

H

Handsets (see Transmitters)

Hard of Hearing, Equipment to Assist

Bone-Conduction Receiver for the Audiphone *Miner* 364

Heat Treatment

Cooling Unit for Furnace (Picture) 97

Furnace in Chemical Laboratories *Grisdale* 214

I

Insulation

Diffusion of Water Through Organic Insulating Materials *Herrmann* 45

Insulation Resistance of Cotton *Walker* 209

Measuring Diffusion Rate (Picture) 1

Nature of Water Adsorbed on Cellulose *Kohman* 72

Ionosphere *Goodall* 194

Iron-Cobalt Alloys *Kelsall* 10

Iron, Hydrogen-Purified (Picture) 245

L

Laboratories, Special

Holmdel *Friis* 117

Microchemical (Picture) 266

View Northeast of West Street Building (Picture) 129

Larynx, Electrical Artificial Mar.—v

Lineman's Safety Belts *Sharpe* 104

Loud Speaking Telephones

(see Public Address Systems)

M

Magnetization

Hysteresis Loop of Permalloy (Picture) 53

Magnetic Materials *Pettit* 39

Maintenance and Adjustment

Projecting Circuit Performance on a Screen *Fairchild* 328

Marine Radio (see Radio-Marine)

Measurements and Testing

Adjustable Oscillator of High Precision *Armitage* 203

Bridge for Measuring Small Phase Angle *Young* 277

Frequency Analyzer, General Purpose *Castner* 267

Galvanometry in Vacuo *Ellwood* 151

High-Speed Level Recorder for Acoustic Measurements . *Bedell* 75

Improved Bend Tester 29

Ionosphere Measurements During Eclipse 208

Measuring Diffusion Rate of Insulating Materials

(Picture) 1

Measuring Displacement of Microphone Contacts *Haynes* 337

Measurements and Testing (*Continued*)

Measuring the Photosensitivity of Crystals (Picture)	318
Mechanical Wave Analyzer	<i>Koenig, Jr.</i> 258
Microanalysis	<i>Hermance</i> 81
Portable Transmission Measuring Set (Picture)	30
Primary Toll Test Board	<i>Krazinski</i> 245
Recording Transmission Measuring Set	<i>Logan</i> 295
Testing Cable Sheath for Fatigue	<i>Greenall</i> 12
Testing Fixture Used for Guy Strands (Picture)	183
Testing Repeater Tubes (Picture)	Nov.—111
Universal Alignment Chart	<i>Peek, Jr.</i> 250

Metals

Heat Treatment	<i>Grisdal</i> 214
Hydrogen-Purified Iron (Picture)	254
Improved Bend Tester for	29
Iron-Cobalt Alloys	<i>Kelsall</i> 10
Magnetic Materials	<i>Pettit</i> 39
Spot Welding	<i>Ferguson</i> 109

Microanalysis

Laboratory and Scope of Work	<i>Hermance</i> 81
Typical Examples (Picture)	96
Micro-Distillation Apparatus (Picture)	May—I
Microphones (see Transmitters)	

N

Networks

Bridged T Equalizer	<i>Stillwell</i> 369
Quartz Crystal Filters	<i>Mason</i> 305

O

Oscillators

Adjustable Oscillator of High Precision	<i>Armitage</i> 203
Barkhausen, The	<i>Llewellyn</i> 354
Oscillograph, The Six-String	<i>Curtis</i> 145
Oscilloscope, Portable	<i>Mallina</i> 17

P

Plugs, Conduit	<i>Gray</i> 281
--------------------------	---------------------------

Police Radio (see Radio-Police)

Power Plants

Vacuum Tube Control of Ringing Machines (Picture)	158
---	-----

Prizes and Other Honors

Edward Longstreth Medal to Edmund Bruce	280, June—i
Faraday Medal to F. B. Jewett	349, Mar.—i
Fletcher, Harvey, Elected Member of National Academy of Sciences	June—i
Fletcher, Harvey, Receives D.Sc. from Columbia	July—ii

Prizes and Other Honors (Continued)

Gilman, G. W., Honored by Japan	July—ii
John Price Wetherell Medal to F. F. Lucas	202, June—i
Morris Liebmann Memorial	
Prize to F. B. Llewellyn	331
Vail Medal Awards for 1934	311
Williams, R. R., Receives D.Sc. from Ottawa University	June—i
Provincetown—Green Harbor Ultra-Short Wave Radio	<i>Merriam</i> 34
Public Address Systems	
High-Power Loud Speakers	
Design Features	Jan.—i
Used at America's Cup Races	80
Portable (No. 13A)	<i>Price</i> 156

Q

Quartz Crystal Filters	<i>Mason</i> 305
----------------------------------	----------------------------

Radio

R

General

Barkhausen Oscillator	<i>Llewellyn</i> 354
Disturbances in Radio Transmission	<i>Skellett</i> 164
Experimental Circuits for 60 cm. Waves (Picture)	28
Holmdel Laboratory	<i>Friis</i> 117
Ionosphere Measurements During Eclipse	208
Ionosphere, The	<i>Goodale</i> 194
Observing the Corona	<i>Skellett</i> 113
Vacuum Tubes at Very High Frequencies	<i>Llewellyn</i> 174
Vacuum Tube for Ultra-High Frequencies (No. 304A)	<i>Fay</i> 379
Wire-Wound Grid Resistance	<i>Ogg</i> 184

Aircraft

High-Voltage Relay for Aircraft	<i>Ronci</i> 241
---	----------------------------

Broadcast

Air-Cooled Rectifier Tubes for Transmitters (Picture)	Jan.—III
Coils and Condensers of 10A Radio Receiver (Picture)	Jan.—I
High-Quality Broadcast Transmitter of Medium Power	<i>Poole</i> 374
Short-Wave Programs for Waldorf Guests	<i>Budenbom</i> 343
Speech Input Equipment	<i>Black</i> 2

Station WOR

Antenna, Dummy (Picture)	Mar.—II
Antenna System	<i>Morrison</i> 232
Antenna Tower (Picture)	225
Control Room (Picture)	Mar.—IV
Oscillator-Modulator Unit (Picture)	Mar.—I
Transmitter (50 Kw.)	<i>Herber</i> 226
Tuning Unit (Picture)	Mar.—III
Station WTCN (Picture)	320
Wide-Band Program Circuits	<i>Hamilton</i> 177

Radio (*Continued*)

Marine

Communication with Vessels in New York Harbor	
(Picture)	Oct.—xii
Radio Compass	<i>Webb</i> 300
Radio Compass Aids in Marine Rescue	199
Radio Telephone Equipment on Trawler Flow	
(Picture)	Jan.—IV

Point-to-Point

Antenna for Provincetown Before Erection (Picture)	103
Antenna for Provincetown—Green Harbor System	
(Picture)	33
Extension of Land Telephone (Provincetown—Green Harbor)	
.	<i>Merriam</i> 34
Ultra-Short Wave Antenna at Green Harbor (Picture)	62

Police

Demonstrating Two-Way System (Picture)	368
Evansville Two-Way System (Picture)	Aug.—i
Newark Ultra-Short-Wave System	
Complete Description of System	<i>Bailey</i> 290
Dispatchers' Tables (Picture)	Apr.—i
Erecting Antenna (Picture)	Feb.—i
Placed in Operation	Dec.—i
Transmitter for Police Duty (No. 15A—100 Watts)	<i>Nimmcke</i> 273
Transmitter for Police Use (Picture)	May—III

Transoceanic

Experimental Station at Montauk in 1915 (Picture)	38
Voice-Operated Compandor	<i>Norman</i> 98
Receiver, Bone-Conduction, for the Audiphone	<i>Miner</i> 364
Recording, Magnetic	<i>Mallina</i> 200
Rectifiers (see Vacuum Tubes)	
Regulator, A High Precision Speed	<i>Trucksess</i> 187
Relay, A High-Voltage	<i>Ronci</i> 241
Resistance, Wire-Wound Grid	<i>Ogg</i> 184
Resistance Standard, High Frequency	<i>Voelker</i> 136

S

Safety Belts, Lineman's	<i>Sharpe</i> 104
Sound, Speech, Hearing and Acoustics	
Acoustic Spectrometer	<i>Hickman</i> 60
Frequency Analyzer, General Purpose	<i>Castner</i> 267
High-Speed Level Recorder for Acoustic Measurements	<i>Bedell</i> 75
Improved Volume Indicator	<i>Kuebler</i> 122
Larynx, Electrical Artificial	Mar.—v
Loudness and Pitch	<i>Fletcher</i> 130

Sound, Speech, Hearing and Acoustics

(Continued)

Spectrometer, Acoustic	<i>Hickman</i>	60
Speech Input Equipment for Radio Broadcasting	<i>Black</i>	2
Standard, High Frequency Resistance	<i>Voelker</i>	136
Statistics, Telephone, of the World		317
Storage Batteries, Enclosed Jar (Picture)		128
Subscriber Station Equipment		
Telephone Set for Outdoor Use	<i>Thayer</i>	264

T

Telegraph Systems and Equipment

A High Precision Speed Regulator	<i>Trucksess</i>	187
Telephone Lines, Depicting Currents in	<i>Zinn</i>	218
Telephone Set for Outdoor Use	<i>Thayer</i>	264
Telephone Statistics of the World		317
Telephotograph System, The 70B1	<i>Reynolds</i>	171

Testing (see Measurements and Testing)

Toll Systems and Equipment

Adjustable Capacitances for Balancing Crosstalk

(Picture) Jan.—II

Automatic Regulation of Transmission on Open-Wire

Carrier Lines	<i>Terry</i>	54
Balancing Crosstalk in Toll Cables	<i>Weaver</i>	359
Bridged T Equalizer	<i>Stillwell</i>	369
Calling by Whistle	<i>Almquist</i>	238
Coaxial Conductor, Experimental Installation (Picture)		358
Coaxial Conductor, Experimental Repeaters (Picture)		193
Coaxial Conductor Systems	<i>Strieby</i>	322
Holding the Ticket	<i>Peabody</i>	350
Primary Toll Test Board	<i>Krazinski</i>	245
Principles of Transposing Open-Wire Lines	<i>Chapman</i>	66
Projecting Circuit Performance on a Screen	<i>Fairchild</i>	328
Recording Transmission Measuring Set	<i>Logan</i>	295
Reference Frequency, Experimental Installation (Picture)		May—II
Regulation of Transmission Over Open-Wire Lines at		
Carrier Frequencies	<i>Ilgenfritz</i>	49
Telephotograph System, The No. 70B1	<i>Reynolds</i>	171
Trunk Group Busy Register	<i>Oakes</i>	21
Wide-Band Program Circuits	<i>Hamilton</i>	177

Transmitters

Die Castings for Handset (Picture)		161
Handset, Early History		Nov.—ii
Measuring Displacements of Microphone Contacts	<i>Haynes</i>	337
Non-Directional Microphone (Picture)		353
Paper Rings for Handset Assembly (Picture)		257
Recent Advances in Microphonic Research	<i>Goucher</i>	332
Transposing Open-Wire Lines	<i>Chapman</i>	66

V

Vacuum Tubes

At Very High Frequencies	<i>Llewellyn</i>	174
Battery of Air-Cooled Rectifier Tubes (Picture)		Jan.—III
Brazing the Water-Cooled Anode (Picture)		155
Characteristics of Western Electric		286
Flashing Filaments (Picture)		240
For Ultra-High Frequencies (304A)	<i>Fay</i>	379
Gas-Filled Thermionic Rectifiers	<i>Ingram</i>	88
High-Voltage Relay	<i>Ronci</i>	241
Inspecting Cathode of Rectifier Tube (Picture)		135
No. 251A (Picture)		Nov.—II
Rectifier Tubes (Picture)		289
Study of Electrical Breakdown by (Picture)		May—IV
Testing Repeater Tubes (Picture)		Nov.—III
Vitamin B ₁ Exhibit at Medical Convention		342
Vitamin B ₁ , Formula		170
Volume Indicator	<i>Kuebler</i>	122

W

Welding, Spot	<i>Ferguson</i>	109
Whistle, Calling by	<i>Almquist</i>	238

Captions for Frontispieces

1934

- SEPTEMBER . . . Apparatus for measuring the rate of diffusion of moisture through organic insulating materials.
- OCTOBER . . . One of the ultra-short wave antennas used for radio-telephone communication between Provincetown and Green Harbor, Massachusetts.

NOTE: Captions for the rest of the frontispieces in this volume will be found under the pictures. All frontispieces have been indexed in the Subject Index.

Index to Authors

A

ALMQUIST, M. L. . . .	Calling by Whistle	238
ARMITAGE, L.	An Adjustable Oscillator of High Precision	203

B

BAILEY, A. B.	A Police Radio System for Newark	290
BEDELL, E. H.	A High-Speed Level Recorder for Acoustic Measure- ments	75
BLACK, W. L.	Speech Input Equipment for Radio Broadcasting	2
BUDENBOM, H. T. . . .	Short-Wave Programs for Waldorf Guests	343

C

CASTNER, T. G.	A General Purpose Frequency Analyzer	267
CHAPMAN, A. G.	Some Principles of Transposing Open-Wire Lines	66
CURTIS, A. M.	The Six-String Oscillograph	145

E

ELLWOOD, W. B.	Galvanometry in Vacuo	151
------------------------	---------------------------------	-----

F

FAIRCHILD, F. E. . . .	Projecting Circuit Performance on a Screen	328
FAY, C. E.	A New Vacuum Tube for Ultra-High Frequencies	379
FERGUSON, L.	Spot Welding	109
FRIIS, H. T.	The Holmdel Laboratory	117
FLETCHER, H.	Loudness and Pitch	130

G

GOODALL, W. M.	The Ionosphere	194
GOUCHER, F. S.	Recent Advances in Microphonic Research	332
GRAY, J. H.	Conduit Plugs	281
GREENALL, C. H.	Testing Cable Sheath for Fatigue	12
GRISDALE, R. O.	Heat Treatment	214

H

HALL, A. G.	Dryness in Telephone Cables	312
HAMILTON, H. S.	Trials of New Wide-Band Program Circuits	177
HAYNES, J. R.	Measuring Displacement of Microphone Contacts	337
HERBER, J. C.	A 50-Kw. Radio Transmitter of High Fidelity	226
HERMANCE, H. W. . . .	Microanalysis	81

HERRMANN, D. B. . . .	Diffusion of Water Through Organic Insulating Materials	45
HICKMAN, C. N. . . .	Acoustic Spectrometer	60
HIPKINS, C. C. . . .	Evaluation of Organic Finishes	141

I

ILGENFRITZ, L. M. . . .	The Regulation of Transmission Over Open-Wire Lines at Carrier Frequencies	49
INGRAM, S. B.	Gas-Filled Thermionic Rectifiers	88

K

KELSALL, G. A.	Iron-Cobalt Alloys	10
KOENIG, W., JR. . . .	Mechanical Analysis of Waves	258
KOHMAN, G. T.	The Nature of Water Adsorbed on Cellulose	72
KRAZINSKI, L. C. . . .	Primary Toll Test Boards	245
KUEBLER, R. E.	An Improved Volume Indicator	122

L

LLEWELLYN, F. B. . . .	The Barkhausen Oscillator	354
LLEWELLYN, F. B. . . .	Vacuum Tubes at Very High Frequencies	174
LOGAN, M. A.	A Recording Transmission Measuring Set	295

M

MALLINA, R. F.	A Mirror for the Voice	200
MALLINA, R. F.	A Portable Oscilloscope	17
MASON, W. P.	Quartz Crystal Filters	305
MERRIAM, F. F.	An Extension of Land Telephone Lines by Ultra-Short Wave Radio	34
MINER, R. C.	A Bone-Conduction Receiver for the Audiphone	364
MORRISON, J. F.	Controlled Radiation for Broadcasting	232

N

NIMMCKE, F. E.	A Small Radio Transmitter for Police Duty	273
NORMAN, N. C.	The Voice-Operated Compandor	98

O

OAKES, W. C.	The Trunk Group Busy Register	21
OGG, R. A.	A Wire-Wound Grid Resistance	184

P

PEEK, R. L., JR.	Universal Alignment Chart	250
PETTIT, I. C.	Magnetic Materials	39
POOLE, R. E.	A High-Quality Broadcast Transmitter of Medium Power	374
PRICE, A. F.	A Portable Public Address System	156

R

REYNOLDS, F. W. . . .	The New Telephotograph System	171
RONCI, V. L. . . .	A High-Voltage Relay	241

S

SHARPE, D. T. . . .	The Lineman's Leather Lifeline	104
SKELLETT, A. M. . . .	Disturbances in Radio Transmission	164
SKELLETT, A. M. . . .	Observing the Corona	113
STAPLES, R. T. . . .	The Switchboard Cord	25
STILLWELL, A. L. . . .	The Bridged T Equalizer	369
STRIEBY, M. E. . . .	Coaxial Conductor Systems	322

T

TERRY, D. M. . . .	Automatic Regulation of Transmission on Open-Wire Carrier Lines	54
THAYER, W. J. . . .	A Telephone Set for Outdoor Use	264
TRUCKSESS, D. E. . . .	A High Precision Speed Regulator	187

V

VOELKER, W. D. . . .	High Frequency Resistance Standard	136
----------------------	--	-----

W

WALKER, A. C. . . .	Insulation Resistance of Cotton	209
WEAVER, M. A. . . .	Balancing Crosstalk in Toll Cables	359
WEBB, W. L. . . .	A Marine Radio Compass	300

Y

YOUNG, C. H. . . .	A Bridge for Measuring Small Phase Angle	277
--------------------	--	-----

Z

ZINN, M. K. . . .	Depicting Currents in Telephone Lines	219
-------------------	---	-----